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ABSTRACT

Using the analogy of language syntax, this paper describes the development of music syntax in children ages 5 months to 5 years. It is suggested that music syntax enables the child to comprehend familiar and unfamiliar music and to reproduce familiar music and create novel music. Observations were made in a day care center and a nursery school of 150 children who were provided with informal music activities. Children of different ages performed activities such as rhythmic movement, chanting, and singing. Data were interpreted as suggesting three stages of music babble: (1) At the first level, the child performs discrete music elements concurrently "in time" with a musical stimulus. (2) At the second level, the child performs combinations of discrete music elements arranged synchronically "in time", but those discrete elements do not give rise to tonal or rhythmic organization. The emergence of spontaneous performance apart from a musical stimulus is interpreted as an objective indication that the child is capable of representing musical sounds mentally (audiation). (3) At the third level, the child's performances become more coherent and resemble, but are not identical to, familiar songs. It is concluded that children can learn a great deal through informal exposure to music and that this exposure should begin before kindergarten. (Author/CB)

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The Development of Music Syntax:

Some Observations of Music Babble in Young Children

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The Development of Music Syntax:
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The idea that music is a language is neither new nor correct. Although music is not a language, music and language do share common characteristics. Two surface similarities may be identified easily. First, both language and music are experienced fundamentally as sound. Second, the sounds of language and music are arranged in time. At a more abstract level of analysis, a third similarity may be identified. The orderly arrangement of the sounds of language and music are comprehended through syntax.

Language syntax enables the child to comprehend familiar and unfamiliar sentences aurally, and to reproduce familiar sentences and create novel sentences orally. There is extensive observational, theoretical, and experimental research that bears on the nature and development of language syntax in young children. One goal of psycholinguistics is to create a formal explanatory theory of how the young child makes the transition from "language babbler" in infancy to knowledgeable and self-directed language user before the age of five. It is generally accepted that a description of the development of the child's syntactic knowledge is an important component of an adequate theory of language development.

Music syntax, like language syntax, enables the child to comprehend familiar and unfamiliar music aurally, and to reproduce familiar music and to create novel music orally. In the psychology of music, or psychomusicology, there is relatively little research that bears on the preschool child's acquisition of music syntax from infancy to age five. The preschool child's music behavior has been characterized as being "music babble" (Moorhead and Pond, 1977; Moog, 1976; Gordon, 1984). A formal explanatory theory of how the

young child makes the transition from "music babbler" to self-directed music maker, in terms of a theory of music syntax, is not available. Perhaps this is because the child's music development is slow when compared to his language development. Nonetheless, it seems reasonable to suggest that a theory of music syntax is an important component of an adequate theory of music development.

Although the reception and production of both language and music may be described in terms of syntax, there is no substantive evidence to support the assumption that principles of generative linguistics can or should be applied to a formal theory of music syntax (Lerdahl and Jackendoff, 1983). It seems reasonable to suggest, however, that similar cognitive processes are involved in the skills of listening to, and performance of, language and music. The differences between language and music are matters of their content and functions.

Given that perspective, music syntax may be broadly defined as the cognitive capacity to give organization to music as it is heard or performed. There is consensus among psychomusicologists that "auditory imagery," "inner hearing," or "audiation" is a fundamental process of music cognition. "Audiation takes place when one hears music through recall or creativity, the sound not being physically present except when one is engaging in performance, and derives musical meaning" (Gordon, 1979, p.7). Audiated music is given organization through music syntax. Tonal syntax is embodied in the recognition or identification of tonality-- major, minor, dorian-- and so on. Rhythm syntax is embodied in the recognition or identification of meter-- duple, triple-- and so on. When one audiates music with tonal and rhythm syntax, one is said to possess a sense of tonality and a sense of meter (Gordon, 1984). A formal theory of tonal syntax and rhythm syntax should explain the knowledge a person possesses when he possesses a sense of tonality and a sense of meter. Such a formal description should identify the mental structures which give rise to the

recognition or identification of tonality or meter.

The purposes of this paper are 1) To report selected musical behaviors of young children who engaged in one-to-one interactions with the writer and 2) To interpret those observations given the premise that much of what a child learns from those behaviors is manifest in the development of music syntax.

Procedure

Sample

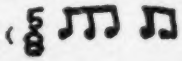
Two samples of preschool age children were observed. One sample consisted of 125 five-month- to five-year-old children, in five homogeneous age groups, who were enrolled in the Temple University Day Care Center.** The children represented diverse ethnic and socio-economic groups living in metropolitan Philadelphia. The children in each age group were provided informal music activities and were observed in two thirty-minute sessions each week for four months. Observations were obtained from large group interactions among the children three years of age and older, and small group and individual interactions with the children younger than three years old.

The second sample consisted of 25 predominantly white, middle class, three- to five-year-old children who were enrolled in a parent cooperative nursery school in Lancaster, Pennsylvania.*** The children were provided informal music activities on one day each week for two academic years. The writer participated in the children's play, work, and meal-time activities throughout the day, thus providing many opportunities to observe their music behaviors in large group, small group, and individual interactions.

Cross sectional observations reported here were obtained from infants and children younger than three years old in the first sample and longitudinal observations were obtained from children three to five years old in the second sample. Observations were recorded in notebooks, and on some occasions, on audio tape recordings. The reported observations are representative of typical

musical behaviors of the respective samples.

Informal Instruction

The children in the longitudinal and cross sectional groups were provided informal exposure to music by the writer. The exposure consisted of singing songs in major, minor, mixolydian, dorian, lydian, and phrygian tonalities, with and without harmonic acompaniment on a guitar or an autoharp. The children were given opportunities to sing familiar songs of their own choosing, and to create songs, if they so desired. The children were also encouraged to move to music, using large and small muscles. The song materials included duple, triple and unusual paired () meters. The children were given opportunities to move to music in rhythmic responses suggested by the writer and in movements of their own choosing.

The music activities were informal for the following reasons. First, songs and activities were not taught with a rote procedure. Children were free to listen to and participate in activities without restrictions or demands imposed by the writer. Second, no attempt was made to "teach" specific musical or non-musical concepts such as pitch matching, "beat," "high" and "low," "loud" and "soft,"and "steps" and "skips," which are examples of formal music instruction and theoretical understanding. Third, the children were encouraged to respond to the music activites, but they were never told that a specific response was inadequate or incorrect. Fourth, recorded music and music instruments were never used as substitutes for use of the human voice and body in music activities.

Observations

The introduction of informal music activities was a relatively unfamiliar form of multidimensional stimulation for the children in both groups. Listening to, singing, or moving to music as simple as a rote song is, in itself, a multidimensional experience. The complex whole of a rote song

includes tonal elements, rhythm elements, a linguistic text, and in some cases, physical actions, such as the motions which accompany "The Wheels on the Bus." The child consciously or unconsciously may attend to parts of any one dimension, or combination of dimensions at any time. For many children, the song text seemed to dominate their conscious awareness. On some occasions, however, a given child demonstrated awareness of tonal or rhythm elements, usually a pattern of one to three tones, or a brief rhythm pattern.

First Spontaneous Performances

From the beginning of instruction, the infants and young children in the cross sectional group engaged in one-to-one interactions with the writer. Two nine-month-old infants often babble-sang discrete pitches in response to rote songs. When songs were being sung in the key of D major and minor, one of those infants repeatedly babble-sang A above middle C; when songs were being sung in the key of G major and minor, she babble-sang G above middle C.

The infants and young children in the cross sectional group engaged in all types of movement responses to music. One eleven-month-old boy was particularly fond of swaying to music while standing in a secluded corner of the room. With his hands and feet outstretched at his sides, he swayed from side to side, using the walls to support his weight. His swaying was not synchronized with the tempo of the music, however, he swayed only when music was being performed. Whenever the music stopped, he peered from around the corner in anticipation of moving to more music.

Many children in the longitudinal group participated in one-to-one interactions with the writer. In those first interactions, a given child sang familiar songs that had recently been sung to him, but on some occasions, he created a novel song. A spontaneous performance of a rote or created song usually consisted of one or two phrases. Rarely did a child sing a rote song in its entirety, unless the writer was asked to sing along. The tonal aspects of

those spontaneous performances only vaguely resembled the tonal characteristics of the songs to which the children had been introduced. One pitch, if any, was consistent throughout a performance. Different children sang the same rote song in different ways, but any one child tended to sing the same song using similar tonal patterns from one performance to the next.

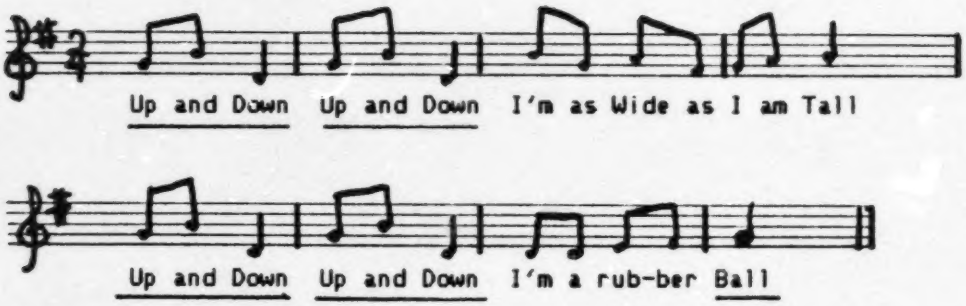
When engaged in spontaneous performance, most children seemed to be self-absorbed, if not self-conscious. On some occasions, however, a given child could be observed singing spontaneously, seemingly without self awareness.

The children in the longitudinal group also engaged in all types of movement responses to music. They walked, ran, jumped, hopped, clapped, rocked, and swayed in response to music. As a group, there was no consensus demonstrated in the characteristics of their movement. Although the children moved seemingly without self awareness or reservation, there seemed to be little relationship between the subjective characteristics of their movement and the objective rhythmic characteristics of the music to which they moved.

More Advanced Performances

As music became more familiar to the children, their musical performances became more advanced. In the cross sectional group, the nine-month-old girl who babble-sang to music from the beginning of informal instruction continued to do so. Her musical babble-singing was extended to include singing individual pitches and pitch patterns without music being present physically. Her parents reported that "singing" and "dancing" became part of her daily activities. Likewise, a 15 month-old boy increased his active participation in music-making, however, he sang only in conjunction with a musical stimulus. He frequently sang the song "Up and Down."

(1)*



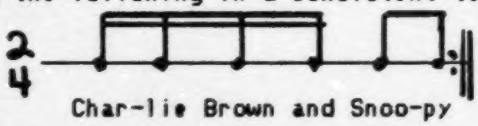
* Underlined portions were babble-sung by the child as he listened to the song in its entirety.

He evidently sang along with only those parts of the song that he could approximate in speech. It is also interesting to note that each portion that he sang, with the exception of the last pitch, consisted of the same three-tone pattern of disjunct diatonic intervals in the same melodic rhythm (♫ ♩). All portions that he sang included the tonic tone (G).

A 2 1/2-year-old boy often spontaneously sang the song "Bingo." Contrary to the previous examples, he sang the song in its entirety, although the "words" and "music" of his performance could barely be recognized as being the song "Bingo."

The children in the longitudinal group also demonstrated more advanced levels of performance achievement. A 3 1/2-year-old girl was observed to be walking and chanting the following in a consistent tempo:

(2)

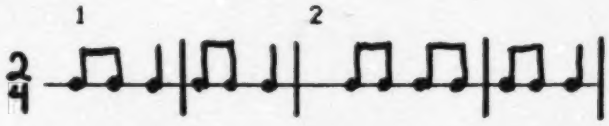


Her mother indicated that the girl had learned to chant that rhythm by being exposed informally to her older sister's Suzuki piano lessons. Although

she repeated that pattern many times with precision, she was reluctant to chant other rhythm patterns or the same rhythm pattern with another text.

On another occasion, a four-year-old boy became interested in echo-clapping rhythms with the writer. Among the duple meter patterns that he echo-clapped were the following pair of patterns, which comprise the song "Up and Down" (notated in example 1).

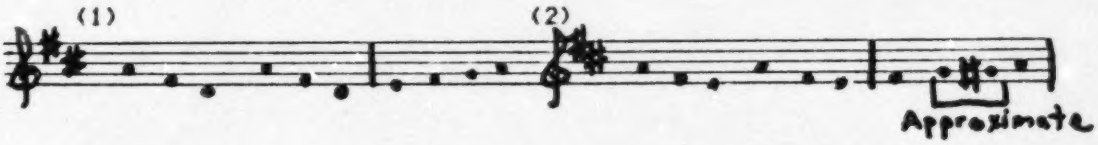
(3)



Although he could clap the individual patterns quite consistently, he could not clap the melodic rhythm of the song "Up and Down" consistently with the writer.

A five-year-old girl spontaneously sang the first two phrases of a song to which she only recently had been introduced. The tonal patterns which comprise the two phrases of the song as they had been sung to the children (1) and as she sang them (2) were as follows:

(4)



The two renditions of the two phrases have the same melodic contour, but not the same interval content. Although not all of the note-to-note relationships are preserved in the spontaneous performance, it is perhaps most important that both renditions begin and end on the same pitch.

Creative Music Responses

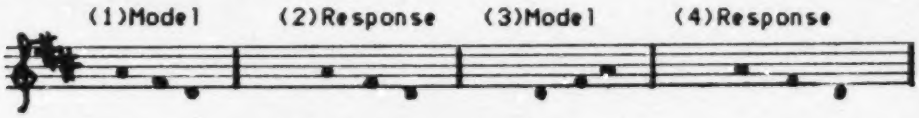
Many children in both the cross sectional and longitudinal groups created novel songs. In general, their creative acts were one of two types. The first, and most frequent creations, were modifications of familiar songs. In those creations the child improvised a song based on the melody, rhythm, and text of the familiar song. The second type of creative performances consisted

of story-like or conversational texts, sung or intoned with brief melodic formuli in a free rhythmic structure.

A five-year-old girl in the longitudinal group often created songs of the second type. On one occasion she created a song based on "The Three Bears" story. She was able to recreate that improvisation a second time, more than two hours after the first. Many melodic and rhythmic details of the two performances were similar, if not identical.

A four-year-old girl became interested in echo-singing tonal patterns with the writer while playing outdoors one day. After echoing four or five patterns on a neutral syllable, the following patterns were performed:

(5)



She echoed the first pattern confidently, without self-awareness. When pattern (3) was performed by the writer, the girl turned away, as if withdrawing from the dialogue, then she responded with pattern (4). Immediately after the performance, she ran off and did not respond to any other tonal patterns sung by the writer. She apparently was not upset, but somewhat bewildered by what she had performed.

Interpretation

It seems reasonable to suggest that three qualitatively different levels of music babble may be identified in the foregoing observations. At the first level of babble, the child performs discrete music elements concurrently "in time" with a musical stimulus-- a pitch, a tonal pattern, a movement, or a rhythm pattern. The child in this level of development typically does not perform apart from musical stimulation.

At the second level of music babble, the child performs combinations of discrete music elements arranged synchronically "in time," but those discrete

elements do not give rise to tonal or rhythmic organization. To the adult, those performances are incoherent. The child in the second level of music babble is capable of spontaneous performance of music apart from a musical stimulus. The emergence of spontanteous performance can be interpreted as being an objective indication that the child is capable of representing musical sounds mentally-- the child is beginning to audiate apart from perception. The quality and quantity of a preschool child's spontaneous musical performances may be the best predictor of his concurrent rote singing achievement and his later developmental music aptitude in Kindergarten (see Gordon, 1979).

At the third level of music babble, the child's spontaneous performances become more coherent. Spontaneous performances of familiar songs resemble, but are not identical to, the characteristics of the songs as they had been sung to the child. The child in the third level of music babble is also capable of creating and improvising music apart from concurrent musical stimulation. Spontaneous and creative performances take on tonal and rhythmic organization. The child sings songs with a recurring pitch center, or performs rhythmically with a consistent tempo. Organization of this type exists "across time" diachronically. Music syntax begins with the emergence of diachronic organization (Gordon, 1984). When the child at the third level of babble listens to or performs music, he is begining to become aware of relationships among the sounds of the music that have occurred in the immediate past, and are occurring in the present. The child's music syntax originates in the second and third levels of music babble and becomes more sophisticated through formal music instruction throughout the school years (Gordon, 1984).

That the development of music syntax is more than a function of memory is demonstrated by the organization of the child's creative music responses. Although they are novel, and therefore not memorized, the child's creative responses are only as coherent as his rote singing and spontaneous performances.

Moreover, because the child can create music, it seems reasonable to suggest that music syntax, like language syntax, is a generative capacity.

Conclusions

There is little doubt that the child learns a great deal from informal exposure to, and spontaneous performance of, music. The same can be said of the child's exposure to, and spontaneous performance of, language. Chumsky (1975) observes that the child's acquisition of linguistic competence is based on extremely little exposure to the "data" of language. One can only speculate about what the young child could learn if he were exposed to the "data" of music one-half as much as he is exposed to the "data" of language. It seems reasonable to suggest that the practice of beginning to expose children to music when they arrive in Kindergarten is increasingly suspect. That preschool children can profit from informal music instruction may provide impetus for additional research investigations which bear on how and what the young child learns by listening to, and performing music. Effective informal exposure to music will be crucial for the future musical development of young children.

Notes

* This research was caried out from 1980- 1982 while the writer was a Russell Conwell University Fellow at Temple University.

** The writer wishes to express thanks to the staff, parents, and children of the Temple University Day Care Center for making their contribution to this research.

*** The writer also wishes to express thanks to the staff, parents, and children of the Unitarian Cooperative Nursery School for making this research possible.

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